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ELECTROMAGNETIC AND ELECTROMECHANICAL MACHINES

Third Edition

Leander W. Matsch, Late

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New Mexico State University

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The memory of Leand

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becca, John, Jr., and his mot

Our students, past, pre:

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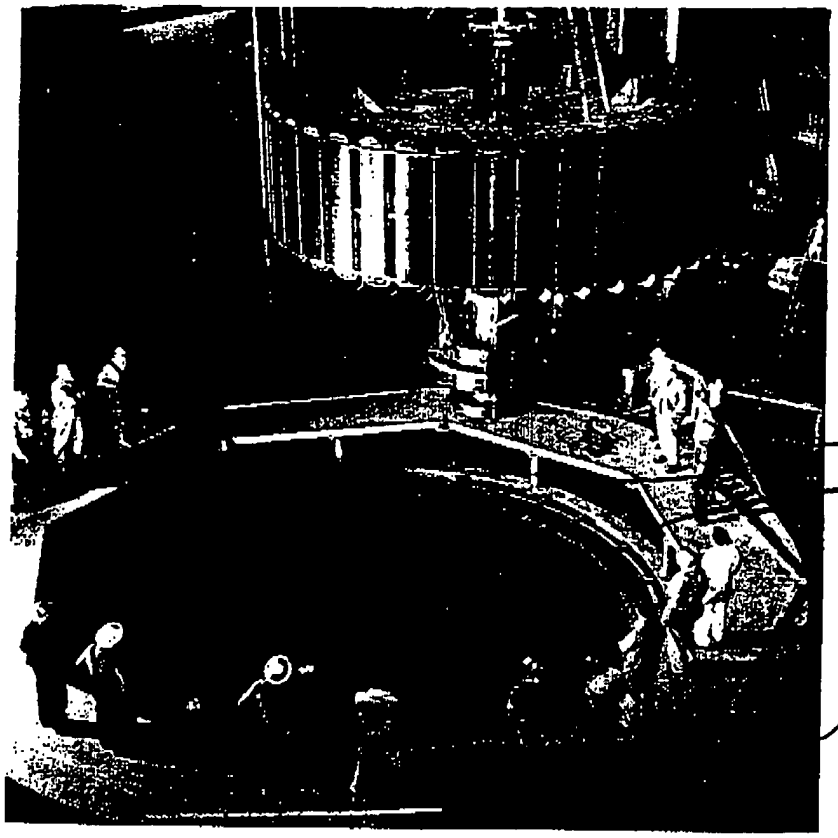

Figure 4-3 Salient-pole rotor being lowered into the stator of a hydrogenerator. (Courtesy General Electric Company.)

associated field coil of a salient-pole rotor is shown in Fig. 4-5(d). The stator slots in which the armature winding is embedded are not shown for reasons of simplicity. The approximate path taken by the field flux, not including leakage flux, is indicated by the dashed lines in Fig. 4-5(a), (b), and (d). The field coils in Fig. 4-5(c) are represented by filaments but actually (except for the insulation between turns and between the coil sides and the slot) practically fill the slot more nearly in keeping with Fig. 4-6.

The stepped curve in Fig. 4-6 represents the waveform of the mmf produced by the distributed field winding if the slots are assumed to be completely filled by the copper in the coil sides instead of containing current filaments. The shape of the mmf wave may be verified for this assumption by taking line integrals of H around appropriate paths. The sinusoid indicated by the dashed line in Fig. 4-6 represents approximately the fundamental component of the mmf wave.

The air gap in cylindrical-rotor machines is practically of uniform length